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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LUKTON, DAVID

ART UNIT

PAPER NUMBER

1653

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26

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
09/202,359

Applicant(s)

Arad

Examiner  
David Lukton

Art Unit  
1653



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on May 17, 2002
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12, 17, and 19-21 is/are pending in the application.
- 4a) Of the above, claim(s) 1-7, 9-11, 17, 19, and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8, 12, and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s): \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 25 6) ☐ Other: \_\_\_\_\_

Pursuant to the directives of paper No. 24 (filed 5/17/02), claims 13-16 have been cancelled, claims 8, 12, 17, 19 amended, and claims 20-21 added. Claims 1-12, 17, 19-21 are pending, of which 1-7, 9-11 remain withdrawn from consideration. In addition, claim 20 is withdrawn from consideration, because it does not encompass the elected specie. The elected specie is the following:  $\text{Cl}_2\text{C}_6\text{H}(\text{OH})_2\text{-CO-CH}_2\text{-CH}_2\text{-C}_6\text{H}_5$ .

In this compound, both hydroxyl groups are *ortho*- to the carbonyl group; thus variables Z and Z' both represent hydroxyl. Accordingly, claim 20 does not encompass the elected specie. Further, neither of claims 17 or 19 encompasses the elected specie; these are withdrawn as well. In the elected specie, variable  $\text{R}_3$  is hydrogen. As it happens, neither claims 17 or 19 permit  $\text{R}_3$  to be hydrogen. Claims 8, 12 and 21 are examined in this Office action.

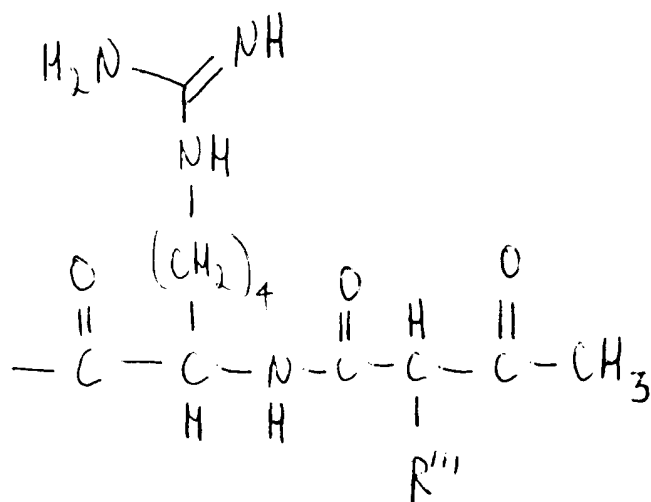
Applicants' arguments filed 5/17/02 have been considered and found persuasive in part.

✱

In response to previous objections, applicants have made changes to the figures. All of these changes are acceptable to the examiner, to the extent that they have been made. However, errors remain in one of the structures. In figure 2B (originally designated fig 2A, page 3 of 5), substituent variable  $\text{R}''$  is defined. In this structure, there are (a) two carbon atoms each of which is missing a hydrogen atom, (b) a nitrogen atom which is missing a

hydrogen atom, (c) a nitrogen atom which bears an extra hydrogen atom, and (d) a carbon-nitrogen bond which is designated as a single bond, but should instead be a double bond.

Presumably the intended structure is the following:



\*

Claim 21 is rejected under 35 U.S.C. §112 second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 implies that one must contact the virus with a mixture of the compound together with various pharmaceutically acceptable salts thereof. However, this is probably not intended. The following phrase is suggested:

A method ... comprising contacting.... .... or a *pharmaceutically acceptable salt thereof*

✱

The following is a quotation of the appropriate paragraphs of 35 U.S.C §102 that form the basis for the rejections under this section made in this action.

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 8 and 12 are rejected under 35 U.S.C. §102(b) as being anticipated by Berger (USP 3,657,436).

As indicated previously, Berger teaches (col 2, line 7) that the compounds disclosed in col 1, line 34+ can be used to treat a disease caused by a picornavirus. In response, applicants have amended the claims to eliminate the possibility of  $R_1$  being hydrogen. However, this amendment is not effective to overcome the rejection, since the issue is not  $R_1$  *per se*, but rather, the possible substituents that can be obtained when  $R_1$  is taken together with "X". As it happens,  $R_1$  taken together with "X" can still represent a carboxyl group.

The rejection is maintained.

✱

Claims 8 and 12 are rejected under 35 U.S.C. §102(b) as being anticipated by Singh (*Tetrahedron Letters* **32**, 5279, 1991).

As indicated previously, Singh teaches (p. 5280) the compound thysanone, which inhibits rhinovirus. This corresponds to applicants variables as follows:

Z = OH  
Y = H  
Y' = OH  
R3 = OH  
Z' and R<sub>1</sub> form a ring

Applicants have responded by arguing that by eliminating the possibility of "Z" representing hydrogen, this ground of rejection is overcome. However, as is evident, this assertion is not correct. The rejection is maintained.

✱

Claims 8 and 12 are rejected under 35 U.S.C. §102(b) as being anticipated by Fujii (USP 4,605,674).

Fujii discloses (col 1, line 16+) substituted chalcones which are asserted (col 4, line 64+) to inhibit replication of picornaviruses such as rhinovirus.

Variable R<sup>1</sup> of the reference can correspond to variable "Z" of the instant claims; there is overlap of the two respective genera for the case of "Z" representing hydroxyl and R<sup>1</sup> (of the reference) also representing hydroxyl. Instant claim 8 permits variable R<sub>1</sub> to be an unsaturated hydrocarbon which is substituted with a phenyl group; that phenyl group, in turn, can be substituted. When variable "X" (instant claims) is a carbonyl group, and at the same time, R<sub>1</sub> (instant claims) is a two-carbon unsaturated hydrocarbon group which is

substituted with phenyl, the compound chalcone results. Claims 17 and 19 are silent as to whether the hydrocarbon group of  $R_1$  is saturated or unsaturated, but the assumption is that both of these possibilities are encompassed.

Thus, the claims are anticipated.

✱

Claims 8 and 12 are rejected under 35 U.S.C. §102(b) as being anticipated by Shinma (USP 4,327,088).

Shinma discloses (col 1, line 16+) substituted chalcones which are asserted (col 4, line 36+) to inhibit replication of picornaviruses such as rhinovirus.

As indicated above (the §102(b) rejection over Fujiu), the instant claims encompass substituted chalcones. Thus, the claims are anticipated.

✱

Claim 8 and 12 are rejected under 35 U.S.C. §102(b) as being anticipated by De Meyer (*J. Med. Chem.* **34**, 736, 1991)

De Meyer discloses various 4'-hydroxy-3-methoxyflavones which are asserted to inhibit picornavirus replication, such as rhinovirus. Various compounds are disclosed in which  $R_1$  (reference variable) is hydroxy. For example, consider compound #20. This corresponds to compounds within claim 8 in which the instant variables are as follows:

Z = hydroxyl;

X = carbonyl;

R<sub>1</sub> and Z' form a ring.

Thus, the claims are anticipated.

\*

The documents published in German or Japanese were stricken from the IDS because of the absence of a translation. However, the following US Patents were considered, as indicated on the PTO-892: US-4,578,520; US-4,503,256; US-5,091,171; US-5,100,893; US-5,359,098; US-4,327,088; US-4,605,674; US-3,956,375; US-4,816,487

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lukton [phone number (703)308-3213].

An inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

*D. Lukton*  
DAVID LUKTON  
PATENT EXAMINER  
GROUP 1800